IN THE CLAIMS

Please cancel Claims 1, 3-11, 13-18, and 21-23.

Please add new Claims 50-74.

Claim Status

1. 3-11, 13-18, and 21-23 (Currently Cancelled)

2. (Previously Cancelled)

12. (Previously Cancelled).

19-20 (Previously Cancelled).

24-49 (Previously Cancelled).

50. (New) A method comprising:

(a) continuously feeding, into a furnace, (i) a free-flowing oxide particle component selected from the group consisting of metal oxide particles, metal alloy oxide particles, refractory metal suboxide powders, refractory metal alloy suboxide powders, and mixtures thereof, and (ii) a free-flowing reducing agent selected from the group consisting of magnesium, aluminum, calcium, and mixtures thereof;

(b) igniting the oxide particle component and the reducing agent at a reaction zone, starting a reaction that is sufficiently exothermic to form a high temperature, self-sustaining flash; and

(c) producing a free-flowing reduced oxide powder selected from the group consisting of refractory metal powders, refractory metal alloy powders, refractory metal suboxide powders, refractory metal alloy suboxide powders, and mixtures thereof.

51. (New) The method of Claim 50, wherein the furnace has a first temperature at a location that is not the reaction zone and the flash is at a second temperature that is greater than the first temperature.

52. (New) The method of Claim 51, wherein the (i) free-flowing oxide particle component and the (ii) free-flowing reducing agent are introduced at a substantially constant rate and the second temperature remains substantially constant.

53. (New) The method of Claim 50, wherein the flash has a temperature that is less than or equal to the melting point of the refractory metal oxide or refractory alloy metal oxide.

54. (New) The method of Claim 50, wherein the oxide particle component and the reducing agent are introduced as a free-flowing mixture and the self-sustaining flash is a stable self-sustaining flash.

55. (New) A method comprising:

(a) continuously feeding, into a furnace having a first temperature at a location that is not a reaction zone, a free-flowing mixture of (i) an oxide particle component selected from the group consisting of refractory metal oxide particles, refractory metal alloy oxide particles, refractory metal suboxide powders, refractory metal alloy suboxide powders, and mixtures thereof, and (ii) a reducing agent selected from the group consisting of magnesium, aluminum, calcium, and mixtures thereof;

(b) igniting the free-flowing mixture at the reaction zone, starting a reaction that is sufficiently exothermic to form a high temperature, stable self-sustaining flash; and

(c) forming a free-flowing reduced oxide powder selected from the group selected from the group consisting of refractory metal powders, refractory metal alloy powders, and mixtures thereof;

wherein the free-flowing mixture is introduced at a substantially constant rate and the second temperature remains substantially constant.

56. (New) A method comprising:

(a) providing a refractory metal oxide component as a free-flowing continuous feed;

(b) contacting the free-flowing refractory oxide component with a free-flowing reducing agent selected from the group consisting of magnesium, aluminum, calcium, and mixtures thereof, thereby creating a static mixture or a dynamically formed mixture;

(c) reducing the free-flowing refractory oxide feed in a reaction zone by heating the mixture in a reaction vessel to create a highly exothermic self-sustaining reaction, the exothermic reaction being triggered by heating the mixture to an ignition temperature or by adding a further reagent or catalyst; and

(d) recovering a high surface area powder, substantially free of impurities, which is selected from the group consisting of refractory metal powders, refractory

metal alloy powders, refractory metal suboxide powders, refractory metal alloy suboxide powders.

57. (New) The method of Claim 56, wherein the reducing agent is in solid form in the mixture.

58. (New) The method of Claim 56, wherein the refractory metal oxide component is in solid form in the mixture.

59. (New) The method of Claim 56, wherein the mixture is formed prior to being fed into the reaction zone.

60. (New) The method of Claim 56, wherein the mixture is formed within the reaction zone.

61. (New) The method of Claim 56, wherein the reaction vessel is a vertical tube furnace.

62. (New) The method of Claim 56, wherein the refractory metal oxide component is selected from the group consisting of tantalum pentoxide, niobium pentoxide, niobium suboxide, tungsten trioxide, chromium trioxide, molybdenum trioxide, titanium dioxide, vanadium pentoxide and niobium oxide, mixtures of at least one of the foregoing and zirconium dioxide, and mixtures thereof.

63. (New) The method of Claim 56, wherein the refractory metal powder, the refractory metal alloy powder are selected from the group consisting of tantalum, niobium, molybdenum, tungsten, vanadium, chromium, titanium, and combinations thereof.

64. (New) The method of Claim 56, wherein the refractory metal suboxide powder is selected from the group consisting of niobium suboxide, tungsten suboxide, molybdenum suboxide, vanadium suboxide, titanium suboxide, and chromium suboxide.

65. (New) The method of Claim 56, wherein the temperature in the reaction zone is less than or equal to the melting point of the refractory metal feed.

66. (New) The method of Claim 56, wherein the powder further comprises agglomerates having a substantially uniform particle size distribution.

67. (New) The method of Claim 56, wherein the powder further comprises agglomerates having a bimodal particle size distribution.

68. (New) The method of Claim 56 further comprising adjusting at least

one process parameter to control the chemical and physical properties of the powder, wherein the process parameter is selected from the group consisting of reagent feed rates, ignition temperature, steady state energy supply, reagent particle size, reducing agent stoichiometry, and inert carrier gas flow rate.

69. (New) The method of Claim 56, wherein the reducing agent in the mixture is provided in an amount substantially equal to the stoichiometric quantity required to react with the refractory metal oxide component.

70. (New) The method of Claim 56 further comprising forming the powder into pellets at an appropriate sintering temperature.

71. (New) The method of Claim 70 further comprising forming the sintered pellets into electrolytic capacitors.

72. (New) The method of Claim 56, wherein the recovering step (d) further comprises agglomerating and/or deoxidizing.

73. (New) The method of Claim 72 further comprising forming the powder into pellets at an appropriate sintering temperature.

74. (New) The method of Claim 73 further comprising forming the sintered pellets into electrolytic capacitors.